

AMENDMENT TO THE CLAIMS:

This listing of claims will replace all prior listings of claims in the application:

LISTING OF CLAIMS:

1-234 were cancelled in an Amendment dated January 11, 2005.

Claims 235-286 are cancelled herein in favor of new claims 287- 338.

287. (New) A method for identifying a compound that putatively modulates taste .in a human subject based on its effect in T1R1 polypeptide activation comprising:

(i) screening one or more compounds in a functional assay that detects compounds which activate or modulate (enhance or inhibit) the activation of a human T1R1 polypeptide selected from the group consisting of:

(a) a T1R1 polypeptide having the amino acid sequence contained in SEQ. ID. NO: 17;

(b) a human T1R1 polypeptide that possesses at least 90% sequence identity to the polypeptide contained in SEQ. ID. NO: 17 that specifically binds to a ligand that also specifically binds to the T1R1 polypeptide contained in SEQ ID NO:17;

(c) a human T1R1 polypeptide which is encoded by a nucleic acid sequence that hybridizes to the T1R1 polypeptide coding region of the nucleic acid sequence contained in SEQ. ID. NO: 15 or 16 under stringent hybridization conditions which are 50% formamide, 5X SCC and 1% SDS, incubating at 42 degrees C and wash in 0.2X SSC and 0.1% SDS at 65 degrees C and which T1R1 polypeptide that specifically binds to a taste ligand that specifically binds to the T1R1 polypeptide contained in SEQ ID NO:17; and

(ii) identifying compounds that putatively modulate taste in a human subject based on their (a) activation or modulation (inhibition or enhancement) of the activation of said T1R1 polypeptide according to (a), (b), or (c), in said functional assay (i).

288. (New) The method of claim 287, wherein said T1R1 polypeptide has the amino acid sequence contained in SEQ. ID. NO: 17.

289. (New) The method of claim 287, wherein said T1R1 polypeptide has an amino acid sequence that possesses at least 90% sequence identity to the polypeptide contained in SEQ. ID. NO: 17.

290. (New) The method of claim 287, wherein said T1R1 polypeptide has an amino acid sequence that possesses at least 95% sequence identity to the polypeptide contained in SEQ. ID. NO: 17.

291. (New) The method of claim 287, wherein said T1R1 polypeptide has an amino acid sequence that possesses at least 96% sequence identity to the polypeptide contained in SEQ. ID. NO: 17.

292. (New) The method of claim 287, wherein the T1R1 polypeptide possesses at least 97% sequence identity to the polypeptide contained in SEQ. ID. NO: 17.

293. (New) The method of claim 287, wherein said T1R1 polypeptide has an amino acid sequence that possesses at least 97% sequence identity to the polypeptide contained in SEQ. ID. NO: 21.

294. (New) The method of claim 287, wherein said TIR2 polypeptide has an amino acid sequence that possesses at least 98% sequence identity to the polypeptide contained in SEQ. ID. NO: 17.

295. (New) The method of claim 287, wherein said TIR1 polypeptide has an amino acid sequence that possesses at least 99% sequence identity to the polypeptide contained in SEQ. ID. NO: 17.

296. (New) The method of claim 287, wherein said TIR1 polypeptide is encoded by a nucleic acid sequence that hybridizes to the TIR1 coding region contained in SEQ. ID. NO: 20 under stringent hybridization conditions.

297. (New) The method of claim 287, wherein said TIR1 polypeptide comprises a functional fragment of the polypeptide contained in SEQ. ID. NO: 17.

298. (New) The method of claim 287, wherein said TIR1 polypeptide is expressed in a cell.

299. (New) The method of claim 298, wherein said cell is intact or permeabilized.

300. (New) The method of claim 287, wherein said TIR1 polypeptide is comprised in a membrane extract.

301. (New) The method of claim 298, wherein said TIR1 polypeptide is expressed on the surface of said cell.

302. (New) The method of claim 298, wherein the cell is a prokaryotic cell.

303. (New) The method of claim 298, wherein the cell is a eukaryotic cell.

304. (New) The method of claim 298, wherein said cell is a yeast, insect, amphibian or mammalian cell.

305. (New) The method of claim 298, wherein the cell is a CHO, HEK-293, COS or *Xenopus* oocyte.

306. (New) The method of claims 298, wherein said cell expresses a G protein.

307. (New) The method of claim 306, wherein said G protein is G_{a15} or G_{a16} or gustducin.

308. (New) The method of claim 287, wherein said functional assay detects the effect of said compound on phosphorylation of the TIR2 polypeptide.

309. (New) The method of claim 287, wherein the functional assay detects the effect of said compound on the dissociation of said TIR2 polypeptide and a G protein.

310. (New) The method of claim 287, wherein the functional assay detects the effect of said compound on arrestin translocation.

311. (New) The method of claim 287, wherein the functional assay detects the effect of said compound on second messenger(s).

312. (New) The method of claim 287, wherein the functional assay detects the effect of said compound on signal transduction.

313. (New) The method of claim 287, wherein the functional assay is a fluorescent polarization assay.

314. (New) The method of claim 287, wherein said functional assay is a GTP γ ³⁵S assay.

315. (New) The method of claim 287, wherein said functional assay detects changes in cAMP, cGMP or IP₃.

316. (New) The method of claims 287, wherein said functional assay detects changes in intracellular calcium.

317. (New) The method of claim 316, which uses a calcium-sensitive dye.

318. (New) The method of claim 287 which detects the effect of said compound on G protein activation by said TIR1 polypeptide.

319. (New) The method of claim 318, wherein said G protein is G_{α15}, G_{α16} or gustducin.

320. (New) The method of claim 287, wherein said TIR1 polypeptide in said functional assay is stably or transiently expressed by a cell.

321. (New) The method of claim 287, wherein the functional assay detects changes in ionic polarization of a cell or membrane that expresses the TIR1 polypeptide.

322. (New) The method of claim 321, wherein ion polarization is detected by a voltage-clamp or patch-clamp method.

323. (New) The method of claim 287, wherein said functional assay comprises a radiolabeled ion flux assay or fluorescence assay that detects TIR1 activity using a voltage-sensitive dye.

324. (New) The method if claim 287, wherein said assay comprises a fluorescent polarization or FRET assay.

325. (New) The method of claim 287, wherein said assay detects changes in adenylate cyclase activity.

326. (New) The method of claim 287, wherein the functional assay detects changes in ligand-dependent coupling of said T1R1 polypeptide with a G protein.

327. (New) The method of claim 326, wherein said G protein is G_{a15} or G_{a16} or gustducin.

328. (New) The method of claim 287, wherein said functional assay detects changes in intracellular cAMP or cGMP.

329. (New) The method of claim 287, wherein said assay measures the effect of said compound on transmitter or hormone release.

330. (New) The method of claim 287 wherein said functional assay detects the effect of said compound on the transcription of a gene of interest.

331. (New) The method of claim 330, wherein said gene is a reporter selected from chloramphenicol acetyltransferase, luciferase, 3'-galactosidase and alkaline phosphatase.

332. (New) The method of claim 287, wherein the functional assay is a high throughput assay.

333. (New) The method of 332, wherein said functional assay screens a library of compounds.

334. (New) The method of claim 333, wherein said library is a combinatorial chemical library.

335. (New) The method of claim 333, wherein said library comprises at least 1000 compounds.

336. (New) The method of claim 287, wherein the effect of said putative taste modulator is further assayed in vivo for its effect on taste.

337. (New) The method of claim 336 which is used to assay the effect of said compound on the taste of a particular compound.

338. (New) The method of claim 336, wherein said assay is used to detect the effect of said compound on sweet or umami taste.